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ABSTRACT

This study focused on the career choice dynamics of college students by examining sex differences in self-efficacy toward occupations that were perceived by the subjects as traditionally male- or female-oriented. The usefulness of self-efficacy as a predictor of career choice and the relationships between careers considered, efficacy beliefs about career, self-esteem, and academic ability were also examined. Male and female undergraduates (N=115) enrolled in career exploration classes completed two self-efficacy questionnaires, the careers considered questionnaire, the Perceived Traditionality Questionnaire, the Rosenberg Self-Esteem Scale, and the Strong-Campbell Interest Inventory. American College Testing scores were used to measure academic ability. Traditionality of a career was found to be a moderator variable in career choice for women but not for men. Efficacy beliefs were found to be significant predictors of career considered. Mathematical ability was positively correlated with efficacy beliefs for traditionally male careers and inversely correlated with efficacy beliefs for traditionally female careers. (Author/NB)

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Self-Efficacy and Career Choice

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Presented at the annual convention of the American Psychological Association, New York, NY, August, 1987.

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SELF-EFFICACY AND CAREER CHOICE

ABSTRACT

This study investigated sex differences in self-efficacy toward occupations that were perceived by the subjects as "traditionally male" and "traditionally female." Also examined were (a) the usefulness of self-efficacy as a predictor of career choice, and (b) the relationships between careers considered, efficacy beliefs about careers, self-esteem, and academic ability. Traditionality of a career was found to be a moderator variable in career choice for women but not for men. Efficacy beliefs were found to be significant predictors of careers considered. Math ability was positively correlated with efficacy beliefs for traditionally male careers and inversely correlated with efficacy beliefs for traditionally female careers.

Self-Efficacy and Career Choice

This study focused on the career choice dynamics of college students, with a special emphasis on examining the relationship between an individual's self-efficacy beliefs about careers and their subsequent willingness to consider various careers and vocational options. More specifically, the study investigated (a) sex differences in self-efficacy toward occupations that were perceived by subjects as "traditionally male" and "traditionally female, (b) the usefulness of self-efficacy as a predictor variable in career choice, and (c) the relationships between careers considered by subjects, their efficacy beliefs about careers, their self-esteem, and their academic ability.

In the area of career development, self-efficacy--an individual's judgments of his/her capabilities to successfully perform specific behaviors (Bandura, 1977)--was initially incorporated as a variable in the career choice process by Hackett and Betz (1981). They argued that self-efficacy beliefs vary across men and women, and emphasized the role that socialization plays in artificially depressing women's self-efficacy beliefs toward the more prestigious and lucrative careers traditionally defined as "male territory." Specifically, they stated that career self-efficacy expectations for women were lower, weaker and less generalized among women than for men.

Differences in performance accomplishments, vicarious learning experiences, levels of emotional arousal, and negative verbal persuasion were all contributing factors to the differences in men's and women's career self-efficacy expectations.

In a empirical investigation of their self-efficacy model of career choice, Betz and Hackett (1981) evaluated the usefulness of "career self-efficacy" as a predictor of careers considered as a vocational option by men and women. Specifically, they studied self-efficacy beliefs, vocational interests and scholastic aptitude as predictors of whether or not an individual would consider a given career.

They obtained from their subjects measures of self-efficacy expectations on 20 occupations; 10 were defined as "traditional" (occupations traditionally chosen by females) and 10 were defined as "non-traditional" (occupations traditionally chosen by males). For each of the 20 occupations, subjects indicated their confidence in their ability (i.e., efficacy expectations) (a) to complete the educational requirements for the occupation and (b) to satisfy the job duties for the occupation. Subjects also indicated their interest in each of the 20 occupations, and the degree of seriousness (if any) with which they had considered pursuing each of the 20 occupations. American College Test (ACT) scores, a measure of scholastic ability, were obtained on subjects when possible.

Betz and Hackett found that males had equivalent efficacy expectations for "traditional" and "non-traditional" occupations. Women, on the other hand, tended to reveal high efficacy judgments for "traditional" occupations, but lower efficacy

judgments for "non-traditional" occupations. Since no sex differences were found on the ability measure (ACT), the authors concluded that the "traditionality" of an occupation is a more important factor in determining the level of self-efficacy expectation for women than for men. Betz and Hackett also found for both men and women that self-efficacy expectations were related to the range of perceived career options (degree of seriousness with which the various occupations were considered) and to the subjects' expressed interest in the occupations.

The Betz and Hackett (1981) study provides an important first look at the possible linkage between self-efficacy beliefs and career choice. Even more significantly, it documents a psychological factor that may clarify why, historically, women's career choices and achievements may be limited (cf. Farmer, 1976; Harmon, 1978; Psathas, 1968). At the same time, "caution in interpreting and using these finding is necessary until they are replicated and generalized" (Betz & Hackett, 1981, p.408). This was, in part, the reason for undertaking the present study. Additionally, the present researchers believed that certain aspects of the Betz and Hackett (1981) design merited reconsideration.

The Betz and Hackett (1981) study investigated traditionality and self-efficacy effects on a relatively small number of careers (N = 20). The careers were chosen because they represented "common and well-known occupations in this society" (p.400) and because they represented a wide range of interest areas. Using information supplied by the U.S. Women's Bureau

(1975), Betz and Hackett categorized those occupations as "traditional" or "non-traditional" based on the percentage of women employed in each occupation. Specifically, occupations in which 70% or more of the workers were women were designated as "traditional," and those in which 30% or less were women were designated as "non-traditional."

Although it would appear logical to assume that the selection process would accentuate those careers most prone to being stereotyped as male or female, the researchers' data revealed that in terms of generalized sex differences in self-efficacy beliefs, the results were not conclusive. In examining the self-efficacy beliefs related to their subjects' felt ability to meet the educational requirements of a given occupation, differences were found in only 10 of the 20 occupations studied. In terms of felt ability to perform the job duties, differences were found in only nine of the 20 occupations. In those careers where no sex differences were found, Betz and Hackett attributed the results to the fact that women "consistently constituted at least a minority of professionals in the field" (p.408). However, it also could be hypothesized that the lack of career self-efficacy differences in at least 50% of the careers sampled reflected the rapid change in attitudes towards the world of work among both men and women. For this reason, it would appear useful to expand the scope of the occupations sampled in order to examine a wider spectrum of careers. Additionally, since it is the subjects' own beliefs or views regarding the the "traditionality" of occupations that is likely to affect the subjects' response to the occupations, rather than the empirical

percentages of men and women in the occupations, it seemed preferrable to assess the subjects' own phenomenological perspective of whether or not various careers were "traditionally male" or "traditionally female," rather than rely on reports from the U.S. Women's Bureau.

In their investigation of the relationship of self-efficacy ratings, subject gender and vocational interests to their subjects' range of career options (i.e., careers considered), Betz and Hackett (1981) assessed their subjects' career interests using a 3-point self-report instrument. Although there has been debate over the benefit of measured/assessed interests versus clients' self-expressed interests in career decision making, the general use of standardized vocational interest instruments in counseling seemed to the present researchers to argue for their use as a measure of vocational interests in research of this sort. This seems particularly true when one is wishing to establish the superiority, or at least "incremental validity" (Mischel, 1968), of self-efficacy ratings over measured interests in career the career choice process.

Finally, in the present study the researchers wished to address directly what has been an implied association between high career self-efficacy and one's overall sense of personal value or self-esteem. Self-actualization theorists (e.g., Maslow, 1970), have generally taken the position that one's ability to self-actualize is in part dependent on one's freedom to fully utilize her/his individual talents and capabilities free from artificial constraints and inhibitions. Hackett and Betz'

(1981) career self-efficacy model, as well as the writings of other well-known writers in the area of women's career development (e.g., Farmer, 1976; Harmon, 1978; Maslow, 1970; Psathas, 1968), reflects the notion that women's career development is anything but free from artificial constraints and inhibitions; indeed, more so than for men, women's career development is characterized more by "compromise" than by "synthesis" (Super, 1957)--resulting in lower self-esteem and lower career self-efficacy. The present study sought to investigate this implied relationship.

With the above as background, the present study investigated sex differences in self-efficacy towards occupations perceived by the subjects as "traditionally male" or "traditionally female" and studied further the usefulness of self-efficacy as a predictor of career choice. Also examined were the relationships between careers considered, self-efficacy beliefs about careers, self-esteem, and academic ability.

It was hypothesized that there would be significant differences across men and women in terms of self-efficacy beliefs towards careers perceived as being "traditionally male" and "traditionally female." It was also hypothesized that self-efficacy beliefs would be found to be significant predictors of careers considered, even when vocational interests, sex of the subject, and self-esteem were included as predictors. Finally, it was hypothesized that there would be a significant relationship between self-efficacy beliefs and an individual's verbal (English) and math abilities.

Method

Subjects

Participants were 115 male and female undergraduates male = 46, female = 69) enrolled in career exploration classes at a major midwestern university. The majority of subjects were freshmen and sophmores. The mean age for the group was 19.89 years (SD = 2.24). The mean age for females was 19.75 years (SD = 1.48), and the mean age for males was 20.13 (SD = 2.22). There was no significant difference in age between male and female subjects, $t(61) = .814$, $p > .05$.

Instruments

The measures used included:

(a) Perceived Traditionality Questionnaire (PTQ). In contrast to Betz and Hackett (1981), who used U.S. Women's Bureau 1975) statistics to define "traditionality" of careers, this study assessed the subjects' own phenomenological perspective on whether various careers were "traditionally male" or "traditionally female." As noted earlier, this approach seemed preferable to the Betz and Hackett approach, since it is the subjects' own beliefs/views regarding the "traditionality" of occupations, rather than the empirical percentages of men and women in the occupations, that is more likely to affect subjects' response to the occupations. In the present study, the occupations evaluated were the 83 occupations listed on the 1981 version of the Strong-Campbell Interest Inventory (SCII) (Campbell & Hanson, 1981). For an occupation to be classified as either "traditionally male" or "traditionally female," it had to

be classified as such by at least 50% of both the men and women in the subject pool. Additionally, in no case was a career classified as "traditionally" male or female if over 10% of either sex classified that career in the direction opposite that of the majority. This assured that those careers defined as "traditionally" male and female were seen as such by the majority of both sexes.

(b) Career self-efficacy--educational requirements. This questionnaire asked subjects to rate each of 83 occupations listed on the SCII on a 10-point Likert scale according to their felt ability to meet the educational requirements of the occupations: "How confident do you feel that you could neet the educational requirements of the following occupations?" (1 = not at all confident; 10 = very confident).

(c) Career self-efficacy--job duties. This questionnaire asked subjects to rate each of the 83 occupations on a 10-point Likert scale according to their felt ability to meet the job duties of the occupations: "How confident do you feel that you could meet the job duties of the following occupations?" (1 = not at all confident; 10 = very confident).

(d) Careers considered. This questionnaire asked subjects to indicate on a 10-point Likert scale how seriously they had considered pursuing each of the 83 occupations: "How seriously have considered pursuing each of the following occupations?" (1 = not very seriously; 10 = very seriously).

(e) Measured interests. In contrast to Betz and Hackett (1981) who simply asked their subjects to indicate their degree of interest in each of the varous occupations with which they

were presented, in the present study subjects completed the SCII as a formal measure of their vocational interests. Only the subjects' "occupational scale" scores were used.

(f) Self-esteem. Subjects completed the Rosenberg Self-Esteem Scale (RSE) (Rosenberg, 1965). This is a 10-item Guttman scale with items answered on a five-point scale from "strongly agree" (5) to "strongly disagree" (1). The scale has a two-week test-retest reliability of .85 (Silber & Tippett (1965), and a reproducibility coefficient of .92 (Rosenberg, 1965). Wylie (1974) reports that the convergent validities for the Rosenberg scale "are among the highest we have observed in cross-instrument correlations" (p.185). Although other self-esteem measures are available, the RSE was selected because of its ease of administrations and its demonstrated acceptable validity and reliability.

(g) Academic ability. Whenever possible, ACT scores were obtained for participants in the study. ACT data were collected on 54 of the 115 subjects. Of the 61 on whom data were unavalable, 19 had not given permission to access their scores, and ACT scores were unavailable for the remainder. Of those on whom ACT scores were obtained, 22 (41%) were male and 32 (59%) were female -- very close to the proportion of males (40%) and females (60%) in the entire subject pool.

Procedures

All subjects were administered the two self-efficacy questionnaires, the careers considered questionnaire, the perceived traditionality questionnaire, and the Rosenberg self-

esteem measure in class. The Strong-Campbell Interest Inventory was administered at the university's student counseling center under standardized conditions. To obtain ACT scores, subjects were asked for their permission to access scores form the university's student data base.

Data Analysis

In order to determine which career subjects perceived as "traditionally male" and "traditionally female," the Perceived Traditionality Questionnaire (PTQ) was analyzed first. Based on the subjects' responses to this questionnaire, the 83 occupations listed on the SCII were classified as traditionally male/female using the criteria specified above. The data from the other questionnaires was then analyzed using the classification obtained from the PTQ.

To test for within and between sex differences in self-efficacy beliefs according to whether a career was considered traditionally male or female, a doubly repeated measures MANOVA was used. The design allowed for two main effect comparisons: (a) traditionally male occupations vs traditionally female occupations (for the entire subject pool), and (b) male subjects' overall self-efficacy scores vs female self-efficacy scores. Additionally, the design allowed for an analysis of the interaction effect of traditionality with sex of subject. Significant main effects were further investigated through post hoc planned comparisons.

Three multiple regression analyses were used to examine the effect of self-efficacy and SCII scores (for traditionally

male/female occupations), self-esteem scores and subject gender on (a) total occupations considered, (b) traditionally male occupations considered, and (c) traditionally female occupations considered.

Pearson correlations were used to examine (a) the relationship between self-efficacy beliefs and self-esteem, and (b) the relationship between self-efficacy beliefs and math and English abilities (ACT scores). Sex differences in ACT scores were analyzed using t-tests.

Results

Using the PTQ and the selection criteria previously discussed, 34 careers were identified as "traditionally male" and 19 were identified as "traditionally female." Three of the traditionally male items were felt to be redundant: Air Force Officier, Army Officer, and Navy Officer. Only one, therefore, was retained (Air Force Officer). From the remaining 31 occupations, seven were retained because they were careers used in the Betz and Hackett (1981) study. Having selected eight careers, an additional 13 careers were selected on the basis of the percentage of subjects selecting them as traditionally male. The net result was a list of 21 careers defined as "traditionally male." All 19 of the careers that met the criteria for "traditionally female" were retained. The resulting list of 40 careers was compared with data distributed by the U.S. Department of Labor (1984). All of the occupations identified in this sample as "traditionally male" were careers in which Department of Labor statistics indicated men constitute the majority of

workers. Of those seen in this sample as "traditionally female," 16 of 19 were occupations in which women constitute a majority. (Interior Decorator, Nursing Home Administrator, and English Teacher appeared to be exceptions). Table 1 lists the occupations defined as traditionally male and traditionally female.

Insert Table 1 about here

The MANOVA designed to test for within and between sex differences in efficacy beliefs according to whether a career was considered traditionally male or female revealed significant main effects for both sex of subject, $F(2,37) = 27.051$, $p < .001$, and traditionality of occupation, $F(2,37) = 5.611$, $p < .01$. Perhaps more importantly, a significant interaction effect (Sex of Subject x Traditionality) was found as well, $F(2,37) = 63.935$, $p < .001$.

For the main effect for Sex of Subject, for educational requirements, there were no significant differences between the overall mean self-efficacy score for men ($M = 5.85$) and the mean score for women ($M = 5.64$), $F(1,38) = 3.324$, $p > .05$. For job duties, the mean self-efficacy score for men ($M = 5.68$) was significantly higher than the mean score for women ($M = 5.13$), $F(1,38) = 21.196$, $p < .001$.

For the main effect for Traditionality of Occupation, there was a significant difference between the subjects' educational requirements efficacy scores for traditionally male careers ($M = 5.28$) and traditionally female careers ($M = 6.25$), $F(1,38) =$

9.283, p< .01. For the job duties efficacy scores, the mean score for traditionally male careers was M = 4.96, and the mean score for traditionally female careers was 5.88, F(1,38) = 11.168, p< .01.

The significant interaction effects for both educational requirements, F(2,37) = 110.959, p< .001, and job duties, F(2,37) = 131.301, p< .001, indicate that sex of subject has a different impact on self-efficacy scores according to whether the scores are base on traditionally male or traditionally female careers.

Table 2 presents the intercorrelation matrix for the variables used in the self-efficacy reqression analyses for (a) the total sample, (b) for men only, and (c) for women only. The three dependent variables were total careers considered, traditionally male careers considered, and traditionally female careers considered; and the six predictor variables were self-efficacy for traditionally male and female occupations, SCII scores for tradtionally male and female occupations, RSE scores, and sex of the subject.

Insert Table 2 about here

The predictors contributing significantly to the regression equation predicting total occupations considered for the entire sample are summarized in Table 3. As shown in the table, self-efficacy for traditionally male occupations and SCII scores for traditionally female occupations contributed significantly to the

prediction equation. Also shown in Table 3 are the variables that contributed significantly to the prediction of (a) traditionally male occupations considered (self-efficacy for traditionally male occupations, SCII scores for tradtionally male occupations, sex of subject), and (b) traditionally female occupations considered (self-efficacy for traditionally female occupations, self-efficacy for traditionally male occupations).

Insert Table 3 about here

These results suggested that futher analysis of the data was warrented, specifically with regard to sex differences that might exist. For that reason, additional multiple regression analyses were performed using the same variable as above, except that the data for men and women were analyzed separately. The only variable dropped from these analyses was sex of the subject.

Table 3 provides a summary of the variables for male subjects that contributed significantly to the prediction of (a) total occupations considered (self-efficacy for traditionally male occupations, SCII scores for traditionally female occupations), (b) traditionally male occupations considered (self-efficacy for traditionally male occupations, SCII scores for traditionally male occupations), and (c) traditionally female occupations considered (self-efficacy for traditionally female occupations).

Table 3 also summarizes for female subjects the variables contributing significantly to the prediction of (a) total careers considered (self-efficacy scores for traditionally female

occupations), (b) traditionally male occupations considered (self-efficacy for traditionally male occupations, SCII scores for traditionally male occupations), and (c) traditionally female occupations considered (self-efficacy for traditionally female occupations, self-efficacy for traditionally male occupations).

The data in Table 2 which dealt with the entire subject pool, revealed that that the self-esteem scores were not significantly correlated with any of the measures used in the study, including the self-efficacy measures. This finding was consistent across correlations of the self-esteem scores with the other measures for men only and for women only.

No differences were found between the mean ACT English scores for men ($M = 18.68$, $SD = 4.42$) and women ($M = 19.55$, $SD = 4.63$), $t(21) = -.60$, $p > .05$; however, a significant difference was found between the mean ACT Math scores for men ($M = 21.64$, $SD = 5.62$) and women ($M = 17.91$, $SD = 7.34$), $t(21) = 2.71$, $p < .05$.

Table 4 presents the intercorrelation matrix for ACT scores, self-efficacy scores, and careers considered scores. ACT English scores were not significantly correlated with the other measures. Math scores, in contrast, were positively correlated with self-efficacy scores for traditionally male careers, $r(53) = .44$, $p < .001$ considered, and for traditionally male careers considered, $r(53) = .30$, $p < .05$. Math scores showed an inverse correlation with traditionally female occupations considered, $r(53) = -.26$, $p < .05$. There was no significant correlation between Math scores and and self-efficacy scores for

traditionally female occupations, $r(53) = .03$, $p > .05$.

Insert Table 4 about here

Discussion

The results of the study revealed no significant differences in self-efficacy scores for men, regardless of whether the occupations were traditionally male or female. Female subjects, however, scored significantly higher on self-efficacy beliefs for traditionally female occupations than they did for traditionally male occupations. This finding supports the results found by Betz and Hackett (1981). It would appear that men tend to judge themselves equally able to meet the educational requirements and job duties for various occupations regardless of the traditionality of the occupation. Women, on the other hand, appear to judge themselves less able to meet the educational requirements and job duties of careers deemed traditionally male than those deemed traditionally female.

The results also indicated that for both educational requirements and job duties, men's scores on the self-efficacy instruments were significantly higher than women's scores for those occupations considered traditionally male. Women's scores on self-efficacy for educational requirements were significantly higher than men's scores for occupations considered traditionally female; however, no significant differences were found on the self-efficacy scores for job duties. These findings are also congruent with Betz and Hackett (1981) who found that "observed sex differences were due to the female's divergent perceptions of

capability" (p.408) towards occupations considered traditionally male and traditionally female, whereas men report equivalent self-efficacy expectations toward traditionally male and traditionally female occupations.

The above results suggest that traditionality of an occupation is an important moderator variable in terms of females' perceptions of occupational self-efficacy; this does not appear to be the case for males, however.

The regression analyses yielded moderate support for self-efficacy as a predictor of careers considered and by inference, of career choice. (The inference is based on the assumption that choice of a career will take place only in the arena of careers that an individual will consciously consider.) Of the nine stepwise multiple regression equations generated, three used "total careers considered" as the dependent variable, three used "traditionally male careers considered" as the dependent variable, and three used "traditionally female careers considered" as the dependent variable. The three in which used "total careers considered" as the dependent variable all provided very general support for the validity of self-efficacy as a predictor of careers considered. However, of more theoretical and practical value are the results of the equations in which "traditionally male occupations considered" (for the total sample, for men only, and for women only) and "traditionally female occupations considered" (again, for the total sample, for men only, and for women only) were the dependent measures.

Referring back to Table 3, it is noted that all of the

multiple R's and Beta values were statistically significant. It is reasonable, therefore, to conclude that self-efficacy was a valid predictor of careers an individual might consider. But the results also indicate that the amount of variance unaccounted for somewhat attenuates the theoretical significance of this finding. This is especially true with predictors of "traditionally female careers considered" for both male and female subjects.

For male subjects, using a combination of self-efficacy scores and SCII scores appeared to be the best single method of predicting "traditionally male careers considered" -- multiple R of .63 with and R^2 of .38 when used as a single predictor. Adding SCII scores for traditionally male occupations raised the multiple R to .75 (R^2 = .54).

To predict "traditionally male occupations considered" with female subjects, the same two predictors emerged: Self-efficacy, when used as the sole predictor, received a multiple R of .58 (R^2 = .33); and when used in conjunction with SCII scores, the multiple R increased to .63 (R^2 = .38).

To predict "traditionally female careers considered," self-efficacy again appeared to be the best single predictor. SCII scores did not enter in to the stepwise regression process. For males, the multiple R of .44 (R^2 = .17) was statistically significant, but the amount of variance left unaccounted for was high. For females, self-efficacy was again the lone predictor (multiple R = .58; R^2 = .31). It was of interest to note that in predicting "traditionally of female careers considered" with female subjects, self-efficacy for traditionally female occupations received a Beta weight of .89, and self-efficacy for

traditionally male occupations had a Beta weight of -.51. This suggests that an inverse relationship existed for female subjects, in that those who were scoring high on self-efficacy for traditionally male occupations were tending not to consider traditionally female occupations.

Overall, the results of the regression analyses support the construct validity of self-efficacy as a predictor of careers considered and career. However, the significant amounts of variance not accounted for attenuates the power of any predictions made using self-efficacy alone, especially if predicting choice of a traditionally female occupation.

The limited range of career considered by the subjects may provide an explanation for these findings. Specifically, the data for male sujects indicate that their mean score on the "traditionally male careers considered" measure was 4.09, and on the "traditionally female careers considered" it was 2.55. For women, the mean score on the "traditionally male careers considered" measure was 2.61, and on the "traditionally female careers considered" it was 3.81. Furthermore, the data revealed that regardless of sex of subject or traditionality of occupation, scores on the self-efficacy measures were uniformly higher than scores on the careers considered measures. Using men's scores as an illustration, it can be observed that although the mean score on the self-efficacy measure was 5.51, the mean score on the "traditionally female careers considered" measure was 2.55. This pattern holds true for all of the other comparisons where self-efficacy means are contrasted with the

means for careers considered. Essentially, some of the unaccounted for variance seems to be explainable by the fact that subjects tended not to be interested in a majority of the careers sampled, even though they felt that they could meet the educational requirements and job duties if they so chose.

Finally, in explaining the unaccounted for variance in the regression equations, it must be acknowledged that other variables surely impact the career choice, but whether these are situational or individual variables (or both) is not clear in this study.

The lack of a signficant relationship between self-esteem and self-efficacy is consistent with Bandura's (1977) conceptualization of the construct of self-efficacy; it was, however, inconsistent with the implication found in the literature regarding career development in women that women will experience a greater sense of self-esteem if their self-efficacy beliefs are also high.

The results of the analyses that incorporated ACT scores supported the notion that math ability and self-efficacy for traditionally male careers are related ($r = .44$). This result is consistent with the findings reported by Betz and Hackett (1981). However, in the Betz and Hackett study, the authors has found no significant sex differences in English or math ACT scores. They also reported that the differences they observed in self-efficacy scores were not paralleled by significant sex differences on the ability measures. The results of the present study, unlike those of Betz and Hackett, found sex differences in ACT math scores. The discrepancy between these findings and those of Betz and

Hackett would indicate that the subject samples in the two studies may not have be comparable, at least along this dimension; but beyond that no firm conclusions can be drawn.

The findings of an inverse relationship between self-efficacy scores for traditionally female careers and ACT math scores, and the positive relationship between traditionally male careers considered and ACT math scores suggest that math ability may need further examination as it pertains to career choice.

Athough the results of this study permit making certain global statements about gender and self-efficacy, at least as they relate to careers a person might consider, it is important to keep in mind that the relationship between gender and self-efficacy is complex (Campbell & Hackett, 1984). Further research is needed to help establish the generalizability of these results, as well as those of Betz and Hackett (1981), to non-college individuals, especially those who may not have access to the career counseling options available to most college and university students. Further research is also needed with individuals in various age groups, to help determine at what developmental stage self-efficacy beliefs emerge and begin to affect one's career decision-making process. Finally, research is needed to help counseling psychologists understand how self-efficacy may relate to and interact with other sex-role beliefs and attitudes. It seems to these authors very doubtful that self-efficacy is a singular attitude, and future research can facilitate understanding about the larger system of beliefs in which self-efficacy beliefs may be enmeshed (cf. Frank, 1974).

Bandura's (1977) theory would postulate that modeling plays a key role in the development of one's career self-concept (Super, 1953). In this regard, research should help to establish the relative contribution of parents, the educational system, peers, etc. in the development of this self-concept. Certainly these factors may need to be considered in situations in which input from counselors can potentially create dissonance with beliefs acquired at an earlier developmental stage or in a different arena.

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Table 1

SCII Occupations Listed by the Subjects as "Traditionally Male" and "Traditionally Female"

Traditionally Male	Traditionally Female
Air Force Officer	Nurse, Licensed
Farmer	Nurse, Registered
Minister	Beautician
Agribusiness Manager	Dental Assistant
Dentist	Executive Housekeeper
Forester	Flight Attendant
Banker	Secretary
Engineer	Dietician
Architect	Librarian
Geographer	Dental Hygienist
Physicist	Elementary Educ. Teacher
Police Officer	Interior Decorator
Chamber of Commerce Exec.	Home Economist
Chiropracter	Special Educ. Teacher
IRS Agent	English Teacher
Investment Fund Manager	Art Teacher
Optometrist	Speech Pathologist
Accountant	Social Worker
Mathematician	Nursing Home Adminis.
Lawyer	
Physician	

Table 2

Intercorrelation Matrices for the Regression Analyses

Total Sample[a]

	TMOC	TFOC	SE-MO	SE-FO	SCII-M	SCII-F	SEST	SEX
TOC	.82*	.82*	.47*	.47*	.14	.25	.06	- .06
TMOC		.33*	.65*	.26*	.52*	.08	.10	-.45*
TFOC			.12	.50*	-.28*	.34*	-.01	.35*
SE-MO				.65*	.41*	.08	.17	-.36*
SE-FO					-.13	.34*	.10	.23
SCII-M						-.09	.07	-.45*
SCII-F							.12	.25
SEST								-.03

Male Subjects Only[b]

	TMOC	TFOC	SE-MO	SE-FO	SCII-M	SCII-F	SEST
TOC	.93*	.92*	.55*	.44*	.32	.38*	.12
TMOC		.72*	.63*	.44*	.51*	.36	.20
TFOC			.38*	.44*	.07	.35	.03
SE-MO				.88*	.17	.21	.22
SE-FO					-.04	.34	.16
SCII-M						.25	.20
SCII-F							.22

Table 2 (cont.)

Female Subjects Only[c]

	TMOC	TFOC	SE-MO	SE-FO	SCII-M	SCII-F	SEST
TOC	.82*	.88*	.44*	.52*	.08	.12	.00
TMOC		.46*	.58*	.40*	.44*	-.01	.02
TFOC			.21	.49*	-.23	.21	-.02
SE-MO				.80*	.35*	.18	.13
SE-FO					-.03	.25	.08
SCII-M						.07	.03
SCII-F							.07

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[a] df = 113 *p< .01

[b] df = 44

[c] df = 67

TOC = total occupations considered

TMOC = traditionally male occupations considered

TFOC = traditionally female occupations considered

SEMO = self-efficacy for male occupations

SEFO = self-efficacy for female occupations

SCII-M = SCII scores for male occupations

SCII-F = SCII scores for female occupations

SEX = Subject gender

SEST = Self-esteem scores

Table 3

Predictor Variables for Occupations Considered

Total Group (N = 115)

Dependent Variable	Predictor	Beta	R	R^2	T
Total Occupations Considered	SE-MO	.452	.47	.21	5.558**
	SCII-F	.213	.51	.25	2.627**
Traditional Male Occupations	SE-MO	.490	.64	.41	6.616**
	SCII-M	.244	.70	.49	3.157**
	SEX	-.163	.72	.50	-2.161*
Traditional Female Occupations	SE-FO	.745	.50	.25	7.310**
	SE-MO	-.367	.58	.32	-3.611**

Male Subjects Only (N = 46)

Dependent Variable	Predictor	Beta	R	R^2	T
Total Occupations Considered	SE-MO	.493	.55	.29	4.018**
	SCII-F	.283	.62	.35	2.304*
Traditional Male Occupations	SE-MO	.555	.63	.38	5.403**
	SCII-M	.414	.75	.54	4.034**
Traditional Female Occupations	SE-FO	.435	.44	.17	3.206**

Table 3 (cont.)

Female Subjects Only (N = 69)

Dependent Variable	Predictor	Beta	R	R^2	T
Total Occupations Considered	SE-FO	.523	.52	.26	5.019**
Traditional Male Occupations	SE-MO	.486	.58	.33	4.770**
	SCII-M	.270	.63	.38	2.653**
Traditional Female Occupations	SE-FO	.893	.49	.23	5.338**
	SE-MO	-.505	.58	.31	-3.021**

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*p < .05 SE-MO = self-efficacy for male occupations

**p < .01 SE-MO = self-efficacy for female occupations

SCII-M = SCII scores for male occupations

SCII-F = SCII scores for female occupations

[a] Beta weights reflect values in the final regression equation

[b] Multiple R's are reported at each significant step in the multiple regression equation

[c] Adjusted R^2

[d] T values are for the final regression equation

Table 4

Intercorrelation Matrix for ACT Scores with Self-Efficacy and Careers Considered

	ACT-Math	SEMO	SEFO	TMOC	TFOC
ACT-English	.47**	.17	.16	.01	.05
ACT-Math		.44**	.03	.30*	-.26*
SE-MO			.63**	.74**	.19
SE-FO				.30*	.66**
TMOC					.20

N = 54

df = 52

*p < .05

**p < .01

ACT-Math = ACT Math scores

ACT-English = ACt English score

SE-MO = Self-efficacy for traditionally male occupations

SE-FO = Self-efficacy for traditionally female occupations

TMOC = Traditionally male occupations considered

TFOC = Traditionally female occupation considered